

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-6. (Canceled)

7. (Currently Amended) A semiconductor manufacturing apparatus for use in removing an oxide layer, comprising:

a vertically movable susceptor ~~installed at a lower portion of a processing chamber~~, for receiving a wafer thereon;

means for annealing the wafer, said means being installed at an upper portion of the processing chamber;

pipes installed outside the processing chamber for providing reaction gases, said pipes comprising,

a first pipe having a microwave guide for changing a gas mixture containing a hydrogen gas and a flourine-containing gas in a fixed ratio, or the hydrogen gas only, into a plasma state, and

a second pipe for supplying the flourine containing gas into the processing chamber; and

a gas diffuser installed below the wafer annealing means, for supplying the reaction gases into the process chamber, said gas diffuser including a gas supply line for receiving the reaction gases from the pipes,

wherein the susceptor is positioned in a lower portion of the process chamber when the reaction gases are supplied onto the wafer, and the susceptor is positioned in the upper portion of the processing chamber when the means for annealing the wafer is operated to anneal the wafer.

8. (Original) The semiconductor manufacturing apparatus of claim 7, wherein the susceptor has a cooling line therein for controlling a temperature of the wafer mounted thereon.

9. (Currently Amended) The semiconductor manufacturing apparatus of claim 7, wherein the gas diffuser further comprises: ~~a gas supply line for receiving the reaction gases supplied via pipes installed outside the processing chamber, and a~~ porous plate forming the bottom of the diffuser, for evenly distributing the reaction gases into the processing chamber, wherein the diffuser is in flow contact with the gas supply line.

10. (Canceled)

11. (Previously Presented) The semiconductor manufacturing apparatus of claim 7, wherein the wafer annealing means is one of a lamp and a laser.

Claims 12-37 (Canceled)

38. (Currently Amended) A semiconductor manufacturing apparatus, comprising:
a vertically movable susceptor ~~installed at a lower portion of a processing chamber and~~ adapted to support a wafer thereon;
a heater which anneals the wafer, said heater being disposed within an upper portion of the processing chamber above the susceptor;
pipes installed outside the processing chamber for providing reaction gases, said pipes comprising,
a first pipe having a plasma generating device for changing a gas mixture containing a hydrogen gas and a fluorine-containing gas in a fixed ratio, or the hydrogen gas only, into a plasma state, and

a second pipe for supplying the flourine containing gas into the processing chamber; and

a gas diffuser installed within the processing chamber and adapted to supply the reaction gases into the process chamber, said gas diffuser including a gas supply line for receiving the reaction gases from the pipes,

wherein the susceptor is positioned in a lower portion of the process chamber when the reaction gases are supplied onto the wafer, and the susceptor is positioned in the upper portion of the processing chamber when the heater is operated to anneal the wafer.

39. (Currently Amended) The apparatus of claim 38, wherein the gas diffuser ~~is connected to two separate pipes extending outside of processing chamber, one of the two pipes being adapted to supply to the gas diffuser a first gas excited to a plasma state and another of the two pipes being adapted to supply to the gas diffuser a second gas that is in a non-plasma state~~ further comprises a porous plate forming the bottom of the diffuser, for evenly distributing the reaction gases into the processing chamber, wherein the diffuser is in flow contact with the gas supply line.

40. (Canceled)

41. (Previously Presented) The apparatus of claim 38, wherein the heater is one of a lamp and a laser.

42. (Canceled)

43. (Previously Presented) The apparatus of claim 38, wherein the susceptor has therein a cooling line adapted to control a temperature of the wafer.

44. (Currently Amended) A semiconductor manufacturing apparatus,

comprising:

a processing chamber;

a vertically movable susceptor ~~installed at a lower portion of the processing chamber~~ and adapted to support a wafer thereon;

means for annealing a wafer, said means being disposed within an upper portion of the processing chamber above the susceptor; and

pipes installed outside the processing chamber for providing reaction gases, said pipes comprising,

a first pipe having a plasma generating device for changing a gas mixture containing a hydrogen gas and a fluorine-containing gas in a fixed ratio, or the hydrogen gas only, into a plasma state, and

a second pipe for supplying the fluorine containing gas into the processing chamber;

gas diffusing means for diffusing at least one process gas into the process chamber, said diffusing means being installed within the processing chamber, said gas diffusing means including a gas supply line for receiving the reaction gases from the pipes,

wherein the susceptor is positioned in a lower portion of the process chamber when the reaction gases are supplied onto the wafer, and the susceptor is positioned in the upper portion of the processing chamber when the means for annealing the wafer is operated to anneal the wafer.

Claims 45-46. (Canceled)

47. (Previously Presented) The apparatus of claim 44, wherein the means for annealing the wafer is one of a lamp and a laser.

48. (Previously Presented) The apparatus of claim 44, wherein the susceptor has therein a cooling line adapted to control a temperature of the wafer

49. (Currently Amended) The apparatus of claim 44, wherein the gas diffusing means further comprises: ~~a gas supply line for receiving the reaction gases supplied via pipes installed outside the processing chamber, and~~ a porous plate forming the bottom of the gas diffusing means, for evenly distributing the reaction gases into the processing chamber, wherein the porous plate is in flow contact with the gas supply line.